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An Interactive Environmental Approach to Teaching English as a Second Language

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An Interactive Environmental Approach to Teaching English as a Second Language

A Field Project Proposal Presented to
The Faculty of the School of Education
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In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts in Teaching English as a Second Language

By
Jennifer Leigh Young
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Under the guidance and approval of the committee, and approval by all the members, this field project has been accepted in partial fulfillment of the requirements for the degree.

Approved:

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Instructor/Chairperson	Date

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ABSTRACT

This field project offers lessons related to ecoliteracy and environmental understanding for intermediate to advanced English Language Learners. It contains an ESL Ecoliteracy Student Handbook and an ESL Ecoliteracy Teacher Guide. There are two comprehensive units focused on understanding and acknowledging ecosystems in urban areas and foraging. The lessons formed in these units stem from Howard Gardner's theory of multiple intelligences and the pedagogical theories of place based and experiential learning. Each unit has an outdoor activity build into the language learning framework, and the lessons are focused on building communicative, reading, vocabulary and grammar skills within an authentic learning atmosphere. Additionally, there are two detailed recommended units focused on waste management systems and orienteering/outdoor survival skills.

CHAPTER I
INTRODUCTION

Statement of the Problem

The National Center for Education Statistics reports that 4.4 million English language learners (ELLs) were enrolled in public schools in the United States of America for the 2012-2013 school year. This number indicates a significant increase in the ELL student population over the past decade. In California alone, ELLs now make up 22.8 percent of the total student population in public schools ("English Language Learners," 2015). The substantial increase in the number of ELLs in school districts nationwide has brought attention to ways teachers can and should support these students' second language development. It is important to keep in mind that most students, except in cases of extreme impairment or severe early childhood abuse and isolation, already have the linguistic resources in at least one language to engage in a range of communicative activities.

Today, more than ever, there is a need for teachers to differentiate and create inclusive learning environments to ensure ELL students are being supported to achieve their learning goals. Specifically, high school students who have been in the country for two or less years (newcomer students) are faced with many challenges associated with their immigration or refugee status. They are expected to quickly acclimate to a new culture, language, physical surroundings, school structures and expectations. Nevertheless, according to the National Council of Teachers of English (NCTE) (2008):

> ELLs are a highly heterogeneous and complex group of students, with diverse gifts, educational needs, backgrounds, languages, and goals. Some ELL students come

> from homes in which no English is spoken, while some come from homes where only English is spoken; others have been exposed to or use multiple languages. It is imperative for English teachers to take students beyond the walls of the traditional high school classroom and use the natural environment within the community as a learning platform. (p. 1)

This reflects on the importance of educators to explore teaching techniques that are not merely centered around activating reading and writing skills in language acquisition.

In addition, NCTE argues:

> One thing is certain: there is no one profile for an ELL student, nor is one single response adequate to meet their educational goals and needs. ELL students are a diverse group that offers challenges and opportunities to U.S. education and to English language arts teachers in particular. (p. 2)

This demonstrates the importance of differentiating teaching strategies to meet ELL students' range of learning styles, and urges educators to tap into a commonly underused resource: nature. The natural world provides a platform in which students of diverse cultural and linguistic backgrounds can relate. Teachers of science often use the natural world to support learning outcomes and pedagogical activities. However, English teachers rarely use it to support their students' learning. Teaching English to newcomer students through physical and intellectual engagement in the natural world could provide opportunities for them to develop English-language skills because "Nature matters to us. It is essential for our survival as a species and is valuable to us" (Nicol, 2012, p. 3). Humans from diverse cultural and linguistic backgrounds share the common thread of being intrinsically connected to and reliant on the environment. In many urban

environments in the US, it is easy for students to feel disconnected from the natural environment and become unaware of the impactful relationship humans have with the surrounding biosphere. It has been recorded that an inherent lack of environmental knowledge, responsibility and concern is a systemic cause of the top industries and nations exploiting the world's natural resources (Rockstrom and Klum, 2015).

Thornburn and Marshall (2014) state, "Nature-based outdoor learning experiences can enhance cognition and emotion through strengthening the connections between the lived-body and the embodied mind" (p. 2). Nature provides a common platform where students of diverse cultural and linguistic backgrounds can have a shared experience, yet it is a worldly classroom that is rarely accessed for academic and linguistic assimilation. Teaching English to newcomer students through physical and intellectual engagement in the natural world will provide opportunities to develop both skills around the social use of language and cognitive interpretation.

Taking an environmentally inclusive approach to teaching English to newcomer students provides them with a means of connecting with the new surrounding area while enhancing their English communication and comprehension skills. There is a need to provide ELL students with diverse learning environments to meet their differentiated multifarious learning needs. There is a need for students to immerse themselves in and learn from the world that surrounds them. This field project stages an intervention of teaching language and communication through movement and engagement with the natural world to a diverse student body living in urban areas.

Purpose of the Project

The purpose of this project is to develop guided lesson plans for English teachers of newcomer ELL students in order to expand their pedagogical methods through a range of active techniques using the natural world, eco-literature, and multiple intelligences. This project is a direct response to the need for curriculum supporting language acquisition through an environmentally focused approach. Peregoy (2001) state, "As second language acquisition progresses, comprehensible input may be oral or written, but in either case it must be accompanied by sufficient non-verbal cues to make it understandable despite learner limitations in second language proficiency" (p.69). There is a need for learning opportunities that transcend those which are available in traditional classroom settings. Educators must design their lessons to meet the learning needs of students who learn through multiple intelligences. This project provides a structured platform for students to access a range of intelligences through outdoor engagement and the study of environmentally inclusive literature in order to strengthen their English language skills.

Theoretical Framework

This field project is largely rooted within the theoretical framework of place based learning, experiential learning, and multiple intelligences.

When one thinks of education, often the image of a classroom with a dust covered chalkboard and rows of desks comes to mind. This structure of education has been widely accepted without question and is currently the assumed platform on which academic education rests. However, even though the classroom is an ideal environment, it can narrow reality in order to concentrate on bits and pieces (Orr, 2013, p. 186). The theory

of place-based learning challenges the traditional physical learning environment and proposes that educators transcend the conventional boundaries of merely teaching in an isolated space. Place-based learning combines intellect with experience and builds upon complementary dimensions of intellect such as, investigation, direct observation and application of knowledge/ language (Orr, 2013, p. 186). Place-based learning inspires individuals to learn through full engagement of their intellectual and physical faculties. Orr states that places are laboratories of diversity and complexity that mix social functions and natural processes. These natural processes and social functions harbor a demand for communication and use of a shared language. "Place" can be a nebulous concept, because in our current society we are largely disconnected from the natural world and resources which supply us (Orr, 2013, 184). From this detachment of natural place from our education and workspace, stems disengagement from understanding and caring for the environment from which we live. Breaking the mold of the traditional English Language Development (ELD) classroom and moving it to outside natural environments/places, holds the capacity to engage language learners in natural communicative situations while cultivating a greater understanding for the nature of the environment in which we live in.

In analyzing the school and social progress, educational theorist, John Dewey explains, "In critical moments we all realize that the only discipline that stands by us, the only training that becomes intuition, is that got through life itself. That we learn from *experience*, and from books or the sayings of other only as they are related to *experience*, are not mere phases" (Dewey, 1907). Experience is a core element of human interactions and the experiential learning theory projects that learning is a major process of human

adaptation that involves the whole person (Kolb & Kolb, 2008). Experiential learning thrusts the learner into an immersive environment that encourages natural communicative transactions between the learner and their surroundings. It is known to be a positive model of transmission of social and interpersonal knowledge. It is imperative to introduce this type of learning experience to language learners, as it will provide them with authentic situations in which they can practice and use acquired language skills.

Each individual student has different learning styles or modes of accessing and acquiring information. These different human faculties of understanding can be defined as intelligences. It is imperative to consider that each individual has many aptitudes, rather than focusing on a singular problem solving faculty that can be measured only through paper-and-pencil tests (Gardner, 2006, p. 22). These intelligences include but are not limited to: linguistic intelligence, naturalist intelligence, intrapersonal intelligence, interpersonal intelligence, bodily-kinesthetic intelligence and spatial intelligence. Students who are working on developing their language skills can benefit from accessing information through a range of faculties, and this field project has been designed to engage a diverse spectrum of intelligences. Gahala and Lange (1997) explain, “teaching [foreign languages] with MIs is a way of taking differences among students seriously, sharing that knowledge with students and parents, guiding students in taking responsibility for their own learning, and presenting worthwhile materials that maximize learning and understanding” (as cited in Ghamrawi, 2014, p. 28).

These three theories (place based learning, experiential learning, and multiple intelligences) provide the framework, which the interactive environmental curriculum will be based on.

Significance of the Project

This field project provides secondary teachers with lesson plans that effectively teach English Language Development (ELD) through ecocriticism and ecocriticism interactive environmental activities. Teachers are challenged daily to reach their students and implement lesson plans that meet the Common Core State Standards within a constricted time frame. This guide serves as a resource for educators who are looking to implement creative environmentally focused lessons that transcend a traditional framework for English language instruction. The lessons provided in this plan can be integrated within a diverse curricular spectrum, and encourage teachers to foster a connection between linguistic instruction and the natural world. The active outdoor lessons are built upon a platform of literature and linguistic lessons that take an ecocritical approach.

Interactive experiences in nature also allow for the opportunity for students to support their peer's language acquisition. Peregoy and Boyle (2001) state:

> Imagine, for example, a small group of students working together create a mural or an art project. Language will be used naturally to accomplish the task at hand. In addition, the language that is used will be context-embedded (Cummins, 1981), or directly related to concrete objects in a here and now situation. (p. 72).

This approach can be applied to teaching English through interactive physical activities in a natural environment. Students will be encouraged to use language as a communication tool to express themselves to achieve the immediate task at hand. The activities provided in this guidebook are aimed to increase student fluency through group communicative natural experiences.

Students raised in urban environments can easily become disconnected from the natural world, which can negatively influence their actions that have an impact on the environment. It has been found that fusing environmental education with language acquisition can elevate students' interest in current issues that could directly influence their futures. It can teach students how to contribute to the health and sustainability of our planet, and it promotes language learning within the realm on meaningful communication (Haushild, Poltavtchenko, Stoller 2012). Introducing students to the natural world in which they live will provide meaningful opportunities for students to enhance their knowledge of how they can conserve and interact with their surroundings.

There are many themes that can ignite the interests of language learners (and instructors), but one of the most critical issues affecting people on a global scale is the environmental degradation of our planet (Hauschild et al, 2012). The purpose of environmental education and exposure is to foster awareness and concern for our planet and understand the associated environmental problems, which stem from human impact. Environmental education has the power to augment attitudes, build skills, inspire motivation and encourage commitment for individuals to work collectively toward solutions of current environmental issues (UNESCO 1976: 1). This field project is a resource dedicated to educators interested in teaching the English language through the activation of multiple intelligences within the spectrum of language acquisition while promoting environmental awareness and engagement with the natural world.

Limitations of the Project

Even though the research and material found in this field project can be adapted to fit many learning spaces and situations, there are certain limitations. This

project is based around building English language skills through experiencing and learning from and about the natural environment. Hence students must be able to have access to the natural world in some regard; whether that is through teacher-led field trips or nature based in-class activities. The success of curricular implementation lies within the ability to expose and engage students with nature. This curriculum can be implemented both classes based in native English speaking countries and countries of other native languages.

Definition of Terms

Differentiation: Differentiation is the means giving students multiple options for taking in information (Tomilson, 1999).

Ecocriticism: Ecocriticism is the critical and pedagogical broadening of literary studies to include texts that deal with the nonhuman world and our relationship to it (Western Literature Association, 1994).

Ecoliteracy (Ecological/Environmental Literacy): The most widely accepted meaning of environmental literacy is that it comprises an awareness of and concern about the environment and its associated problems, as well as the knowledge, skills, and motivations to work toward solutions of current problems and the prevention of new ones (NAAEE 2004).

ELD: English Language Development

ELL: English Language Learner

Orienteering: A sport in which people use a map and a compass to travel along a route they do not know as quickly as possible (Merriam-Webster Dictionary, 2016).

CHAPTER II
REVIEW OF THE LITERATURE

Introduction

The following explore the fundamental pedagogy on which this field project rests. It is focused on the history of conservation, global development of environmental education and contemporary models of environmental education.

History of Conservation

There is an unprecedented interconnectedness within the natural world. How an individual in Stockholm commutes effects the farmer in Ecuador (Rockstrom and Klum, 2015, pg. 17). The human touch has impacted the world on a grand global scale in ways stretching from greenhouse gas emissions to climate change, agricultural designs and more. Currently in the 21st century, 35 % of the Earth's land has been extensively modified by humans! These modifications have resulted in rapid loss of biodiversity, and some say that the Earth is in the midst of its sixth great extinction (Rockstrom, Steffen, Noone, et al, 2009). We are now seeing the interdependence of our existence within in the natural world, and realizing that our actions do indeed have a grand impact on the world in which we live (Rockstrom and Klum, 2015, pg. 21). Early environmentalists understood the Earth as finite, and saw the environment versus development and two separate entities with win-loss outcomes and zero-sum games (Rockstrom and Klum, 2015). In the nineteenth century, it was a common practice to do whatever the person saw the best way to thrive, which capitalized on Darwin's idea of 'survival of the fittest' (Goudie, 2000, pg. 2). This desire to thrive stimulated many profound inventions leading way to revolutions of industry and technology. With the birth of such revolutions also

came a correlating planetary impact. The ecological modernist now recognizes environmental health and successful human civil development as dependent on each other's success. There is currently a large push to understand the environment and discover ways to create co-dependence between the business world and the natural planetary world through using scientific expertise and technological innovation (Chaturvedi and Doyle, 2015, pg. 27). Investing in sustainable development is no longer merely a choice for good Samaritans to make. We are finding that many of the world's resources that have been exploited are rapidly disappearing and we are being forced to come up with sustainable alternatives (Rockstrom and Klum, 2015, pg. 37).

Humans have been living in the geological era called the Holocene for about 12,000 years (Rockstrom and Klum, 2015, pg. 36). The Holocene was the mark of the end of the ice age and has provided us with a stable climate. It has been good to humans. Recently though, scientists are noting that we are entering a new geological age; the Anthropocene. (Frank, NPR). This is marked by dramatic changes in the carbon and nitrogen cycles. The stable environment of the Holocene era is changing, and returning to the way things once were is neither realistic nor morally tenable (The Economist May 2011). Things are changing, and we must stop considering our existence as separate from the natural environment. Upon industrializing human civilizations and creating cities that are dynamic microcosms encompassing all human needs, we have categorically defined the places we live in as civilized and we call other spaces which haven't been as notably augmented by the human hand, wild. However, there is little land on the planet that has truly not been altered by our presence. "Almost 90% of the world's plant activity, by some estimates is to be found in ecosystems where humans play a significant role" (The

Economist, May 2011). Many scientists believe that the natural world can be studied in isolation from human settled environments, but the concept of the era of the Anthropocene forces us to reconsider the two as separate entities. Consequently, it is more important than ever before to study the environmental and experience the nature that surrounds us.

We are in an age where environmental consciousness is essential. There is no reversing what generations of degradation has done to this planet, but we can use the powerful tool of human ingenuity to create new solutions for human and environmental interconnectivity. This starts with education and experience. This starts with recognizing every living organism as being wild and worth exploration. Wilderness is not apart from us. Wilderness is the tree that you passed by on your morning commute, it is the community park that you enjoy after a long day of work, it is the grass that you feel between your toes. It is amongst us, and it is time that we start learning about it, conceptualizing it and *talking about it* in and outside of classrooms.

Global Development of Environmental Education

It is a common conception that environmental education is a relatively recent movement. It is true that we didn't formally see the term 'environmental education' infiltrating the public domain until the 1960s; however, we can see the early developments of environmentally conscious movements in the writings of nineteenth century educators, writers and thinkers such as Goethe, Rousseau, Humboldt, Haeckel, Froebel, Dewey and Montessori (Palmer, 2002). The concept of environmental education can be traced back to a conference held in 1965 at Keele University, Staffordshire, where the term was first recorded as, "the purpose of investigating conservation of the

countryside and its implications for education" (Palmer, 2002). This newly recorded term quickly gained traction in the educational community and was expanded upon in conferences around the world. The United National Educational, Scientific and Cultural Organization (UNESCO), held a conference in 1968 that encouraged a global recognition of environmental education by promoting technical training, and advocating setting up national coordinating environmental education bodies around the world (Palmer, 2002). This call to action was recognized and picked up by other advocacy groups around the world, and the term 'environmental education' was further curated at the International Working Meeting on Environmental Education in the School Curriculum conducted by the International Union for Conservation and Nature (IUCN) (1970). The agreed upon term by the delegates was the following:

> Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulating of a code of behavior about issues concerning environmental quality. (p. 11)

This concept of environmental education promotes a more cross-curricular approach to the field. It encourages students to acquire more than merely a scientific understanding of the workings of the ecosystems we inhabit, but also build various social and cognitive skills through experiencing our natural world.

In 1992 The Earth Summit held in Rio de Janeiro put out a message (Agenda 21) that structured a transformational shift in global attitudes and behaviors addressing

environmental concerns. The message was transmitted by 10,000 on-site journalists and witnessed by delegates from the United Nations. The message projected that poverty and excessive consumption by affluent populations were placing damaging stress on the environment. There was a call for greater awareness of human impact on our surrounding environment. Agenda 21 provided a detailed framework, which examined the relationship between human rights, population, social and environmentally stable development (United Nations, 1997). This led to a global outcropping of programs focused on educating children and adults about human environmental impact and led to the rise of ecocriticism, which is the study of the relationship between literature and the physical environment (Glotfelty, 1978).

The ecocritical approach stems from the recognition that the current issue of climate change is connected to other social problems within our society; such as, poverty, mass migration, health crisis, the social impact of natural disasters, etc. It was a response to the need of integrating knowledge from many different disciplines. It was a reaction to the call for ecoliteracy, an awareness of and concern about the environment and its associated problems (NAAFE, 2004). The ecocritical approach is a way to promote understanding and connection between humans and nature by fostering understanding of our impact and relationship with this planet through stories and text. The ecocritical approach is meant to encompass more than just literature that has to do with the environment, and includes green (cultural) studies, ecopoetics and environmental literary criticism (ISSN, 2012).

An example of an ecocritical organization in the United States, is the Association for the Study of Literature and Environment (ASLE). This organization offers access to

ecocritical texts, techniques and other resources that can be used by writers, artists, educators and activists. Ecocritical organizations, such as ASLE, help individuals to explore the environment through a textual format, while other environmental education institutions have responded to the call of environmental exposure through promoting physical engagement in natural spaces. Both methods have various positive impacts on promoting environmental awareness and sustainable practices. This project embodies both the theoretical ecocritical approach and physical methods of environmental exposure and education, which will be further explored in the next section.

Contemporary Models of Environmental Education

Since the recognition of environmental degradation and the realization that the impact is largely coming from humans and our actions, there has been a global push towards educating individuals about the environment and reconnecting us emotionally and physically with our natural surroundings. Many organizations have taken different approaches to achieving this goal. In this section, I will showcase a selected sample of different organizations/movements based in the United States and their current model of environmental education.

The first category of environmental education initiatives will be focused on organizations that embrace the idea of teaching environmental appreciation and understanding through exposure to the natural world.

The Teton Science School: This organization is a private non-profit school based in northwest Wyoming and Idaho and is deeply rooted in the premise of outdoor natural exposure and place-based learning. It was founded in the 1960s by a science teacher, Ted Major, who believed that the best way to learn about natural sciences would indeed be to

expose students to natural places with limited human interference. The school offers several different programs all focused around education with an environmental focus. The programs offered include; “Field Education” for elementary and high school students, a graduate teaching program focused on place-based learning, ‘Sense of Place Curriculum’ focused classes, and more. This school represents a private organization that individuals can choose to invest in to get a learning experience integrated with the environment. The Teton Science School encourages students from various backgrounds to attend; yet costs range from $8,900 to $29,900.

Vida Verde: This organization offers students from low-income households a natural retreat experience. The program was started by two former teachers who recognized the lack of opportunities for low income students engage in environmental education programs. Vida Verde provides 2-5 day educational programs to students in grades 3-6. Vida Verde’s programs were developed for teachers of underserved youth to take their classes to. The class trips are centered around five core components: nature hike in the Redwoods, goat milking/ cheese making, tide pool, beach and marsh exploration, night-time hike and an organic farm tour. The educational purpose of this structured initiative is to raise environmental awareness and teach students through kinesthetic learning.

The next category of environmental initiatives I will introduce are large professional associations that provide research and resources to various professionals, organizations, and schools.

NAAEE (North American Association for Environmental Education): This organization works with educators in the United States, Canada, and Mexico to advance

environmental education. This organization is responsible for providing research initiatives such as Anecdotes to Evidence, which aims to showcase the value and impact of environmental education through doing a comprehensive analysis of existing research. It also has launched the online portal eePRO, which is an educational network on which professionals can share their resources and opportunities. NAEE works with a variety of international agencies and governmental partners to, "accelerate environmental literacy and civic engagement through the power of education" (NAEE, 2016).

The Council for Environmental Education (CEE): This organization provides programs and educational materials to encourage sustainable living and works on a national level within the United States. The mission of this organization is to, "provide environmental education programs and services that promote stewardship of the environment and further the capacity of learners to make more informed decisions" (CEE, 2016). Their projects include Flying Wild, focused on bird conservation, Growing Up Wild, focused on exposing children to nature at a young age, project wild, focused on animal conservation, and more.

KQED Learning: The final environmental educational model that I will present, is focused on teaching environmental awareness to speakers of other languages. The KQED/PBS learning coalition has launched a resource guide with eco-literacy curriculum with the purpose to inspire student acquiring the English language to be informed about green issues and make sustainable decisions. The curriculum model focuses on both local, Bay Area, and global concerns. The lessons provided are culturally inclusive and encourage students to share about their own experiences with the environment in their native country.

This field project will be most closely aligned with the KQED model. It will be focused on contributing to the collective of teacher resources centered around teaching English language skills to speakers of other languages with an environmental education focus.

Summary

A new era has been born. Not only the new geological era of the Anthropocene, but a new educational era in which there is a global initiative to understand more than just information printed on pages, but know where those pages were resourced from and how. It is an era of students who question their actions and have an idea of what is the impact of their actions on an environmental scale. Environmental education not only can benefit the environment, but can provide emotional and cognitive enhancement opportunities for learners. This type of education deserves to be available to everyone, no matter what language they speak, or how much money they make. This project aims to couple English language acquisition with environmental competency in aims to foster individuals who are aware and in touch with their surrounding environment.

CHAPTER III
THE PROJECT AND ITS DEVELOPMENT

Brief Description of the Project

This project is a curriculum guide focused on teaching English to speakers of other languages with a focus on environmental education and ecoliteracy (understanding the natural world). It aims to enable students to develop English language skills while conjointly furthering understanding about the environment and encouraging positive engagement with their natural surroundings. This curriculum guide is split into an ESL Ecoliteracy Student Handbook and an ESL Ecoliteracy Teacher Guidebook. This curriculum focuses on vocabulary, reading and grammar development. It addresses practicing presentation skills and creating authentic learning experiences. This guide was developed for high school students living in urban areas; however, it could be adapted and used for many different student populations.

There are two main units in this project; *Wild Neighborhood* and *Foraging*. The *Wild Neighborhood* unit focuses on understanding ecosystems and recognizing the burgeoning natural life that exists within the confines of urban locations. The *Foraging* unit explores sustainable eating and how to forage for your own food. Each have four comprehensive lesson plans. In these units, students are encouraged to explore the natural world within urban areas outside of the classroom, and lessons integrated into these units that require students to look closely at the nature that that thrives within the concrete jungle. At the end of each unit, students are asked to create an awareness poster reflecting what they learned and experienced throughout the unit. These posters are to be hung up around their educational community space to promote awareness of nature, and instill

fervor in individuals to enjoy, appreciate and protect the beautiful natural world that surrounds them, within and outside of cities.

Development of the Project

The inspiration for this project emerged from a culmination of my experiences teaching ELL high school students in a large urban public school and my interest in exposing students to interacting with the nature that flourishes right outside urban classrooms. Through teaching a diverse population of ELL students, I found that strictly teaching language through traditional methods in the classroom only reached a portion of my students. I wanted to engage and challenge the full spectrum of my classroom; which encouraged the lessons in this project to be focused on teaching to multiple intelligences. I also noticed that students became much more engaged with material and concepts when they could connect them to their lives in an authentic way. I created this project in hopes to connect students' natural experiences with language acquisition. I wanted to make the natural world accessible and enjoyable for all individuals; independent of economic status, native language, or previous experience in natural spaces.

In the Bay Area, a common activity is going for a hike in the breathtaking undeveloped spaces outside of the confines of the city. There is a concept that one must go outside of urban boundaries to find and explore *real* natural areas. This concept can be extremely limiting though, and leaves many low-income inner-city immigrant families, who can't afford to travel outside of their urban environments, excluded from enjoying natural novelties. This unit aims to magnify the breadth of scope to what is *real* nature, and encourage individuals, from all backgrounds, to recognize, interact with and enjoy the *real* and really interesting nature that lives within the city.

The Project

The project in its entirety can be found in the appendix.

CHAPTER IV
CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Chapter I established the problem that there is a diverse group of ELL students who have a variety of learning styles and needs. There is a need for teachers to teach to these multiple intelligences and learning styles. There is a need for education to transcend the traditional classroom setting, and a need to embrace authentic learning environments. Nature can be this authentic learning environment, which proves to be a common ground amongst students from disparate backgrounds. Humans, of all cultural backgrounds, are intimately tied to nature and rely on natural resources for survival. However, there are many misconceptions and disconnections between individuals living in urban environments and nature. This unit invites immigrants within urban areas to identify, understand and interact with the natural environments within the urban areas around them.

There are a variety of lessons and activities, which are designed for students with different learning styles to be able to access the information presented. All of the units designed in this project include learning activities that students must perform outside of the traditional classroom. Students are encouraged to collaborate throughout the units and share out their ideas, findings, photos and more. The lessons in these units are not merely aimed to strengthen students' English language skills. They are specifically designed to bolster students' linguistic competence, while connecting with the natural environment and members in their class and community.

Recommendations

Due to limited time, the scope of this project was scaled back; however I recommend teachers expand on these two units with the following additional unit outlines.

The Clash of Trash Unit: Every week Americans take their loaded trashcans to the curb and, poof, the garbage trucks swiftly make it disappear. For many, the concept of trash follows the classic adage, "out of sight, out of mind." It is generally dirty, smelly, and unappealing, so it is easy to divert one's focus from thinking about or understanding waste. However, the reality is that the trash that we produce doesn't simply disappear. Trash management systems are complex and have a big community impact. In 2013, the United States alone produced 254 million tons of trash (US Environmental Protection Agency)! This recommended unit explores what happens to that trash, and aims to raise awareness of what we can do to reduce our waste.

The suggested unit lessons are as follows:

Lesson 1 will focus on understanding waste management systems. In this unit, the teacher should introduce waste related vocabulary such as; recycle, compost, decompose, landfill, sanitation, etc. To strengthen students understanding of waste management systems around the world, the teacher can conduct a reading jigsaw with articles that explain how different countries deal with human produced garbage.

Lesson 2 will focus on understanding waste and sanitation from a personal point of view. Students would learn interviewing skills and then invite a panel of custodians to the classroom to interview them about what their experience is like managing others' waste.

Lesson 3 will take students out of the classroom and into a world of trash that most of them probably have never experienced. The teacher is encouraged to contact their local waste management provider and if possible take students on a field trip to the waste service provider's facility. The students would then write a reflective journal about their experience.

Lesson 4 will access students creativity. In this lesson, students would be given a large trash bag to collect all the landfill trash and recycling, which they produced in one day. Students will not be responsible for keeping their compost scraps with them. Students will have to carry their trash with them all day, as an act of awareness to how much trash they (one person) produces in one day. They will also get to see how much trash they produced as a class. Students will then reflect on the process and create an art piece from the scraps of recycling and landfill that they gathered. This can be an individual or a collaborative project.

Lesson 5 will be an collective comprehension assessment. Students will create an awareness poster reflecting all the concepts related to trash production and management that they learned. These posters will be hung around the campus to promote awareness.

Orienteering and Outdoor Survival Skills: This unit will cover the basic principles of orienteering and outdoor survival skills. Orienteering is a low-cost sport that engages both physical and mental elements. Orienteers must navigate unknown territory by using a map and compass to find select locations. This recommended unit teaches ESL students the skills of orienteering and other skills to withstand the natural world outside of the confines of given amenities and comforts, while developing their English language

skills. Students will learn related English vocabulary and grammar skills, which will be used during various social activities.

Lesson 1 will focus on teaching students outdoor survival skills. It is recommended that students role play and are introduced to survival related vocabulary. To strengthen student understanding of the risk of outdoor exploration and importance for survival education, the teacher can introduce the students to related texts or movies. Teachers could also choose to expand on this unit and explore novels related to outdoor survival; such as *Into Thin Air* by Jon Krakauer, *Touching My Father's Soul: A Sherpa's Journey to the Top of Everest* by Jamling T. Norgay, or *Touching the Void* by Joe Simpson.

Lesson 2 will focus on knot tying. Knowing how to tie strong and appropriate knots is a valuable skill to have in the outdoors! This lesson is perfectly compatible with a lesson of prepositions. It is recommended that the teacher conducts a lesson of prepositions such as; on, around, through, into, under, over, etc. Then have students practice tying knots by following your spoken and/or written instructions.

Lesson 3 will be focused on teaching students about orienteering, which is a sport in which people use compasses and topographic maps to locate a specific location or object. During this lesson, it will be important to teach students how to read a compass and a topographic map, as well as how to follow physical directions.

Lesson 4 will be an orienteering field trip! The teacher will break students into teams and conduct an orienteering race! Whoever navigates to the designated location first wins!

Lesson 5 will be a wilderness survival awareness poster. Students must include knot tying and orienteering tips for how they could best survive in strenuous outdoor environments.

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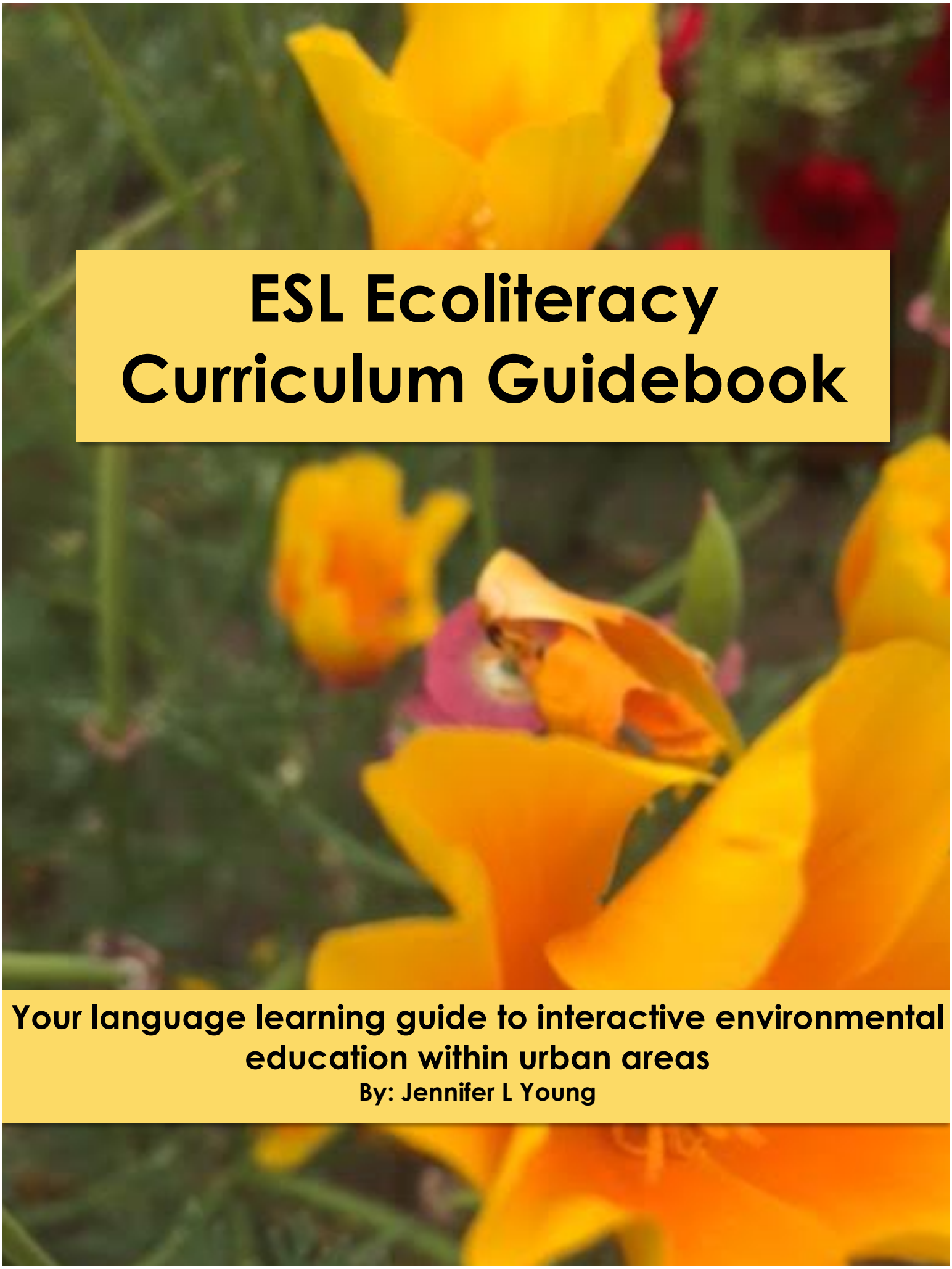
APPENDIXES

ESL Ecoliteracy Curriculum Guidebook &

ESL Ecoliteracy Teacher Handbook



ESL Ecoliteracy Curriculum Guidebook

Your language learning guide to interactive environmental education within urban areas

By: Jennifer L Young

Welcome Students!

Are you ready to explore the natural world? We tend to think that learning must occur within the confines (limits) of a building. This is not so! The natural world surrounding us is packed full of learning potential! The units in this curriculum guidebook explore nature and encourage you to get out there and learn from it.

You will learn:

- American English grammar structures
- Writing and speaking skills
- Nature conservation skills
- How to find, enjoy and protect nature in urban settings.
- How water and waste systems work

TABLE OF CONTENTS
Organization of Activities and Lessons

Wild Neighborhood

What is living amongst us?

What do you think of when you hear the words, "Wild" or "Nature"? You probably don't think of your neighborhood or a city, but you may need to look a little closer! There is wildlife all around us, and in this unit you will learn how to recognize the beautiful wild world that lives within the boundaries of your neighborhoods.

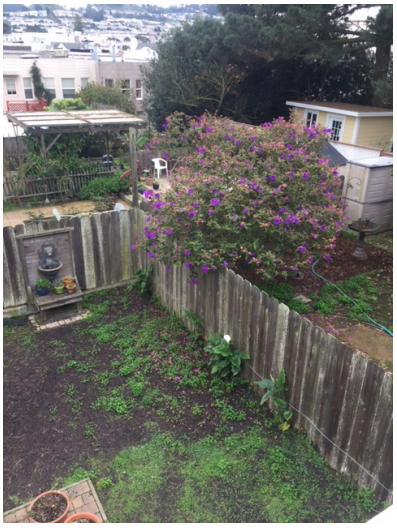
Lesson 1: Understanding Ecosystems

Warm Up:

What do you think of when you hear or see the word NATURE?

How often do you see or experience NATURE everyday?

Would you describe this picture as a natural environment? Why or why not?



Fact:

We often think of nature as a wild untouched place by humans, but nature is really all around us. There are healthy ***ecosystems*** *in our city neighborhoods and it is up to us to enjoy and protect all the nature that lives with us in urban environments.*

Reading:

Ecosystems; Small and Large

Once upon a time there was a little green frog named Fred. Fred lived a small pond, which was in a big park in an even bigger city called San Francisco. Fred was a happy little frog, who loved hopping from lily pad to lily pad listening to the hum of people, cars and bikes buzzing by the little pond he called home. The **soil** at his home was always rich, the air was always moist with fog, and the **climate** was just right for him. But one day, an old frog he had never seen before came to his pond. The old frog was not happy like all the other frogs living at the pond, so Fred went over to ask him what was the matter. Fred hopped over to the big old frog and asked, "Sir, why are you so sad?"

The big old frog said, "I am sad, because this pond you call home is not a real pond. This is not truly nature. It has been made by men and it is in the middle of a big **concrete** city. I used to lived over the bridge, in a pond that was surrounded only by plants and animals, not people and cars!"

The little frog frowned and said, "But sir, we have everything that we could ask for here. The climate is perfect, there are plenty of flies to eat, and there is everything that you would ever need in our little **environment**."

The big old frog just shook his head and said, "But it just doesn't *feel* like nature. It feels like an **artificial ecosystem.** It doesn't feel real!"

The little frog had never considered this and started to tear up thinking that his whole life was a lie! His pond wasn't *real* nature. He hopped home to his family feeling very sad and angry.

For dinner that evening, his mom prepared his favorite dish, fresh fly and worm salad, but he couldn't bring himself to eat it. When his mom saw that he hadn't touched his plate, she asked, "What's the matter little Fred? Why aren't you eating?"
Fred sobbed, "Today an old frog told me that we don't live in a *real* pond. He said that our environment isn't as nice as those environments that are outside of cities."
His mother smiled and said, "Now my sweet little Fred, that is the silliest thing I've ever heard. Of course our home is *real*. It is an ecosystem just like any other. It has living plants, animals, trees, fish, birds, water and soil. It is a functioning unit of nature, and everything that exists in our ecosystem is dependent on each other. Real ecosystems are everywhere! They can be as small as a single tree or as large as an entire forest. They exist in every city as well as far away from streets and people. Our pond is as natural as any other pond out there."

Little Freddy then took a long look around him and he saw wild, natural life everywhere! He saw little fish swimming underneath the lily pads, flies buzzing in the evening air, plants growing around him and fallen leaves **decomposing** in the soil. He smiled at the beautiful ecosystem that thrived in his big city park in the even bigger city of San Francisco and then stuffed the delicious fly and worm salad in his mouth and went to bed loving his wild natural home nuzzled in between bustling city blocks.

New Vocabulary!

Write what you think each word means, using clues from how it appears in the story:

Soil (n):

_____

_____

Climate (n):

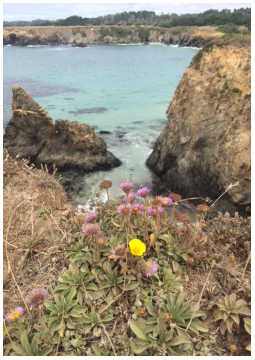
_____

_____

Concrete (n):

_____

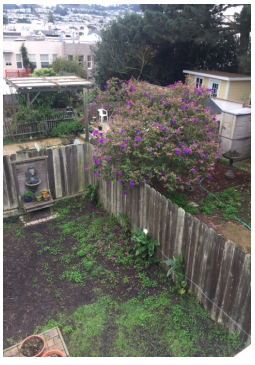
_____



Environment (n):

_____

_____



Ecosystem (n):

_____

_____

System (n):

_____

_____

Decompose (v):

_____

_____

Vocabulary Matching

Match the word to the correct definition

1. _____ Soil
2. _____ Climate
3. _____ Concrete
4. _____ Environment
5. _____ Artificial
6. _____ Ecosystem
7. _____ System
8. _____ Decompose

a. Everything that exists in a particular environment. It includes living things such as plants and animals, and things that are not living, such as rocks, soil, sunlight and water.
b. The usual weather conditions in a particular place or region
c. Not natural or real
d. A group of related parts that move or work together
e. To cause something (such as dead plants and the bodies of dead animals) to be slowly destroyed and broken down by natural processes, chemicals, etc.
f. A hard, strong material that is used for building and made by mixing cement, sand, and broken rocks with water
g. The top layer of earth in which plants grow
h. The natural world

Written Reflection:
What Ecosystems Are Around You?

After reading the story, "Ecosystems; Small and Large" and learning the new vocabulary words, think about the ecosystems that you see everyday. Describe, in as much detail as possible, the ecosystems that you have recognized in your daily life. Think about parks that you have visited, backyards, front yards, city gardens, etc. Describe where they are and what is living in the ecosystem.

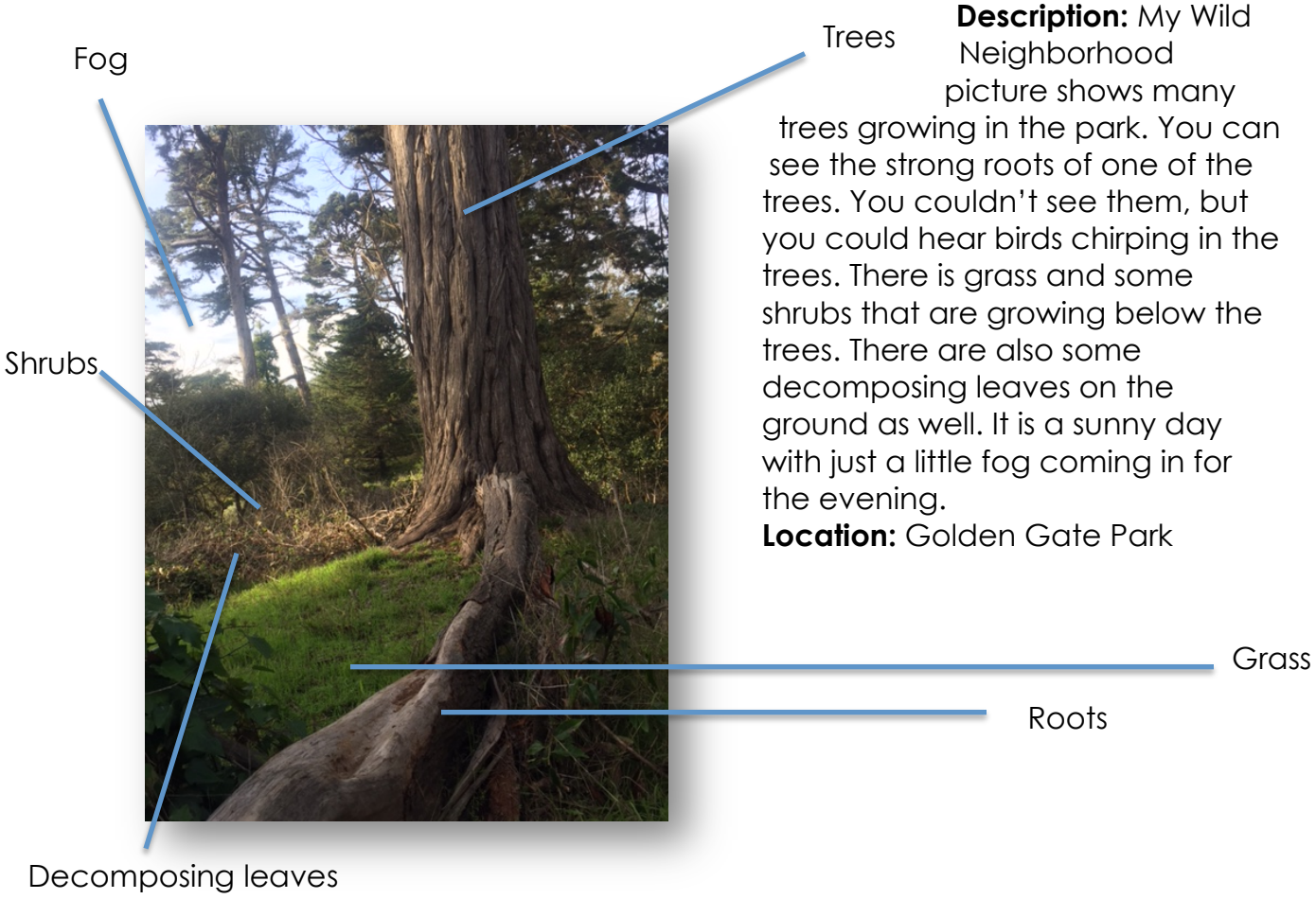
Lesson 2: Wild Neighborhood Photo Hunt

English Language Objective: Write descriptive identifications
Ecoliteracy Objective: Bring awareness to the ecosystems within cities

We have learned how wild, natural ecosystems can be found in many unexpected places within the city limits. Your next task is to go out and record a wild natural space within the city that you find interesting or beautiful.

Step 1: You will take a picture of it and print it out to be shown to the class.
Step 2: You will write a description of what is in the picture and where the picture was taken.
Step 3: You will then label your picture.

Example:



Description: My Wild Neighborhood picture shows many trees growing in the park. You can see the strong roots of one of the trees. You couldn't see them, but you could hear birds chirping in the trees. There is grass and some shrubs that are growing below the trees. There are also some decomposing leaves on the ground as well. It is a sunny day with just a little fog coming in for the evening.
Location: Golden Gate Park

Lesson 3: Wild Neighborhood Photo Presentation

You will now get the opportunity to show off your work! You will present your photo to the class and describe what is in your photo and why you chose to take it!

Lesson 4: Wild Neighborhood Awareness Poster

As a team of 3-4 you will create a poster to bring awareness to the ecosystems that are thriving within the city. Your poster should make people think again about what is "wild" and "natural", and show people that thriving natural life is living right amongst us in the city!

Guidelines:

1) You must use at least 2 of the new vocabulary words.
2) You must use at least one of your photos that you took.
3) Inform people about ecosystems and encourage them to appreciate the wild nature in the city!
4) Use your Wild Neighborhood photos in your poster.

These posters will be hung up around your school!

Foraging
Find Your Food!

When eating a sandwich with fresh bread hugging crisp lettuce, succulent tomatoes and melted cheese oozing out of the side, it is easy to be consumed by the deliciousness of the product and nothing else. Every bit of that sandwich has come from the earth though, and there was a large unseen process to get that food from the earth to our mouths. We largely have become depended on others to gather this food from the earth to eat. This unit encourages the consumer to experiencing foraging for their own food, which will in turn foster a greater awareness and respect for the food that nourishes us and keeps us alive.

Lesson 1: A Foundation in Foraging

Ecoliteracy Learning Goal: Learn about the background, purpose and rules of foraging.
Common Core Language Objective: Vocabulary development, summarizing texts, understanding key textual concepts

Warm Up: Food and Foraging Classmate Survey

Ask a Classmate!

1. Where do you normally get most of your food? _____
2. Have you ever gathered your food from plants or trees? Yes / No
3. What is your favorite berry to eat? _____
4. What is your favorite park to visit? _____
5. What do you usually see at the park? _____

What is this person doing?

_____
_____
_____
_____

New Vocabulary!

Forage (v):

_____

_____

Example:

_____

_____

Image Credit: Google Images

Toxic (adj):

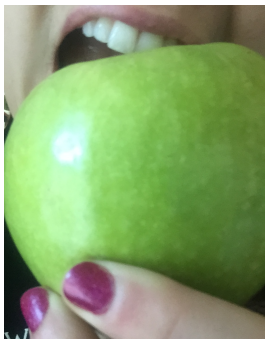
_____

_____

Example:

_____

_____



Edible (adj):

_____

_____

Example:

_____

_____

Image Credit: Google Images

Sustainable (adj):

_____

_____

Example:

_____

_____

Identify (V):

_____

_____

Example:

_____

_____

Image Credit: Google

Endangered (adj):

_____

_____

Example:

_____

_____

Reading Warm Up

True or False: Tasting a pant is part of the identification process.

True or False: You should eat as much foraged food as you can pick.

True or False: A common danger when foraging in the city is dog poo and wee.

True or False: It is legal to pick any plant you can find outside.

True or False: The quality of the soil affects the quality of the plants.

Reading:

Foraging Safety, Common Sense and the Law:

Adapted text from Forage London

First things first…NO NIBBLING!

Putting something in your mouth is not part of the identification process; it's what you do with food. Once you are 100% certain of what you are dealing with, then trying a tiny amount may or may not be the appropriate next step, but tasting an unidentified plant is as dumb as putting a loaded gun in your mouth and pulling the trigger to find out if it contains bullets or not.

Nibbling: taking small bites of something.

All Things in Moderation

When trying something new for the first time, only eat a very small amount to make sure there are no bad effects. We are all different and can respond to food differently too, so doing a simple sample test is smart. For example, the Valerian root is used to make a wonderful **sedative**; however, in about ten percent of people it has the polar opposite effect and acts as a **stimulant**. When trying a new type of mushroom for the first time, and I am confident that I know exactly what it is, I cook and eat a tiny section of one mushroom, the following day I eat a larger piece and the day after is when I might then eat the whole mushroom.

Moderation: Being reasonable and avoiding behavior, speech, etc., that is extreme

Sedative: A drug that calms or relaxes someone

Stimulant: A drug that makes you more active

Greedy: Taking all of something for yourself

Another reason for moderation is simply to not be too **greedy**. It's such a good feeling when you find and successfully identify something you know is going to taste great and it's sometimes really hard not to get carried away but if foraging is to be accepted as a responsible urban activity it's important that everyone involved doesn't over do it.

Dog Poo and Wee

The main danger to human health in dog **feces** is the presence of the eggs of *toxocara canis*. *Toxocara canis* is a worm, which lives harmlessly in our furry friends but presents a danger to humans and can also spread by living in the soil long after the feces have disappeared. Whether **urban** foraging or in the countryside, avoid dogs muck and wash anything you find at ground level. Dogs wee, due to clever **canine** leg lifting, it may be on plants a good bit higher so I never eat anything as I go along unless I'm sure it's out of the dog wee zone

Feces: solid waste that is released from the body

Urban: of or relating to cities and the people who live in them

Canine: of or relating to dogs

(how high can a wolf hound pee anyway?), or unless its in an area I'm sure no dogs could access. Avoid plants that look scorched or blackening, this could be either as a result of animal urine or far worse, the use of **pesticides**. Just use your common sense and select plants, fruits, nuts and other foods in the same way you'd do in a shop, leaving behind anything that isn't in great condition. Lastly, and to overstate the obvious, don't pick anything from the base of city trees however healthy it looks (wee is a great source of **nitrogen** and plants thrive on it).

Nitrogen: a chemical that has no color or smell and that makes up a large part of the atmosphere

Pesticides: a chemical that is used to kill animals or insects that damage plants or crops

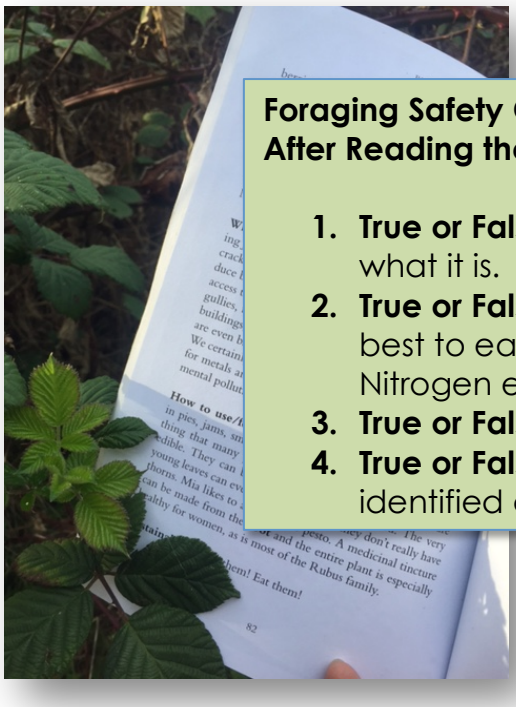
Poisonous plants and fungi

There are numerous toxic plants growing in this country. Once you decide to view the things growing around you as a potential source of food or medicine you are **susceptible** to various dangers and as such should only ever eat something you are 1000% sure of. Most of our common edibles have poisonous lookalikes so I would advise only going foraging with someone knowledgeable at first or foraging with a good guide but not eating anything you find to start with. With time and a little experience there is plenty you can pick and enjoy safely.

Fungi: living things that live on dead or decaying things. Ex: mushrooms

Susceptible: easily affected, influenced, or harmed by something

Reading Take Away!



Foraging Safety Comprehension Check:
After Reading the article above, answer the following questions:

1. **True or False:** It is ok to taste a foraged plant if you think you know what it is.
2. **True or False:** The plants found at the base of city trees are the best to eat because they usually have a good amount of Nitrogen exposure.
3. **True or False:** People have the same reaction to healthy plants.
4. **True or False:** When you have found and 1000% correctly identified a plant, you still shouldn't take that much.

Put It In Your Own Words!

Rewrite the main message in each section of the reading in your own words.

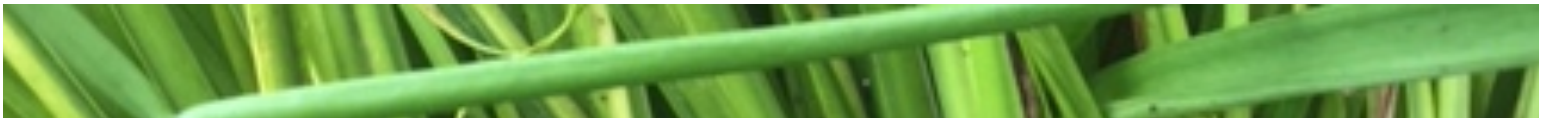
First things first… NO NIBBLING!

All Things in Moderation

Dog Poo and Wee

Poisonous Plants and Fungi

Class Share Out: Share out your summaries to the class! Also, have you ever gotten sick from food? Share why you think the food made you sick and what that experience was like.



Plant Identification Reading Jigsaw!

Warm Up:

Name as many plants and trees that you know in the Bay Area!

Becoming Identification Experts!

Procedure:

Step 1: Get into groups of 3

Step 2: Each group will be given an edible plant to learn about.

Step 3: Groups will create a plant identification poster

Step 4: You will present your plant to the class. It will be your responsibility to teach the class all about that plant and how to identify it while foraging.

Poster Guidelines: Make sure you include the following information in your poster!

1) **The name of your plant**
2) **What does it look like?**
3) **When can you find it? (What season does it grow?)**
4) **Where can you find it?**
5) **How can you use/forage it?**
6) **What are sustainable practices?**

Clover

What does it look like?
It is a deep green plant, with 3 leaves. They are a low growing plant, and most of them have light pink, purple or white little puffy flowers.

When can you find it?
All year

Where can you find it?
You can find in yards, farms, forests, meadows, ranches, etc. Clovers grove where there is a lot of sun and moderate water.

How can you use/forage it?
You can eat all parts of the clover! Clover flowers can be eaten fresh or cooked. They have a lot of vitamins and minerals that are good for you.

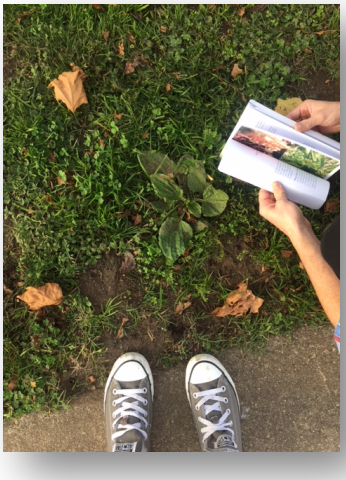
What are sustainable practices?
Since clovers are common, it is safe to harvest them from most places. They are also natural fertilizer!

Lesson 2: Foraging Field Trip!

You will now get the opportunity to go out and forage! You will collect the edible plants that you have learned about with your class.

Rules:

- Do not eat anything, unless your teacher has given it the "OK".
- Make sure you use sustainable practices when foraging.
- There will be separate labeled boxes for each plant. Place the correct plant in the correct box.
- Be aware of your surroundings! Be respectful of the natural spaces that you enter.



Be sure to:

Fill in your foraging log, which can be found on the next page.

Work together in groups!

Take photos with a camera or phone to share with the class and document the experience.

Now get out there and forage!

Record What you Forage!

It is important to keep a record of what you gather. Include the details of the name of the plant, where you found it (location), and other details of the experience!

My Foraging Log

Plant	Location	Notes
Blackberry	*Golden Gate Park - next to a small path North of the De Young museum.*	*The blackberry bush was full, but the blackberries looked old. Some of them were not looking juicy anymore. We decided to leave them and not pick them.*

Foraging Reflection Journal

What was this experience like for you? What did you enjoy and/or what did you not enjoy? What was one meaningful moment that happened while you were foraging? What was the biggest takeaway from this experience? Would you go foraging again? Why or why not?

Description Words!
Use one or more of the following words in your reflection:

Exciting: causing feelings of interest and enthusiasm

Adventurous: exciting or unusual; doing something new

Positive Description Words

Amazing: causing great surprise or wonder

Interesting: causing feelings of interest and enthusiasm

Unique: used to say that something or someone is unlike anything or anyone else

Alive: filled with life and energy

Average: not unusually good or bad

Curious: having a desire to learn or know more about something or someone

Neutral Description Words

Difficult: not easy: requiring much work or skill to do or make

Dull: not exciting or interesting

Strange: different from what is usual, normal, or expected

Negative Description Words

Boring: uninteresting

Horrible: causing horror: very shocking and upsetting

My Foraging Experience

Lesson 3: Cooking with Foraged Food

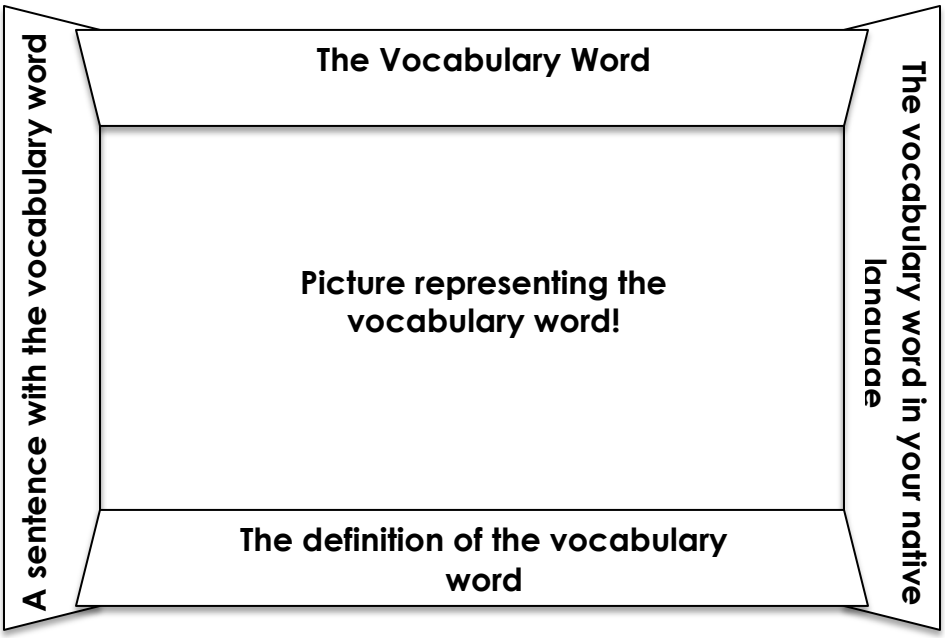
Warm Up:

What is your favorite meal to eat that how do you make it?
Share out with the class.

Vocabulary:

You will create vocabulary frames for the following words. Work in groups of 3 – each group member will create vocabulary frames for 2 vocabulary words. You will then share your frame and word with your group.

Vocabulary Frame Template:



Vocabulary Word List:

Recipe
Ingredients
Procedure
Prepare
Stir
Pour

Grammar: Transition Words

Look at the recipe procedure below for Famous Flapjacks:

- First, mix the flour and sugar together in a bowl.
- Next, mix the milk, eggs and vanilla extract into another bowl.
- Pour the mixed milk, eggs and vanilla extract into the flour and sugar bowl. Then mix them together until smooth. This is your batter.
- After, heat up a pan and melt the butter on the hot surface.
- Pour a cup of batter onto the hot pan and let it cook until you see bubbles rising from the batter.
- Then, Flip the pancake and cook both sides evenly until golden brown.
- Finally, when it is done, put butter and freshly foraged blackberries on top of the hot flapjack and enjoy!

Now, notice how each step starts. It starts with a word called a <u>TRANSITION WORD.</u>

From looking at how transition words are used in the recipe above, what do you think a transition word might be (in your own words)?

_____

_____

<u>Transition words:</u>

- Help the reader move more smoothly from one idea to another!
- They act like a road sign to let the readers know where they are and tell readers what to expect coming up next in a paragraph or essay.

The following transition words help the reader know the order in which things happen.

First, **Then,** **After,** **Finally,**

You use these words at the start of a sentence and put a comma after!

Example:
First, I would like to go to the store.
Then, I would like to eat lunch.
After, I will meet up with my friend
Finally, I will go home to watch a movie.

Write a Recipe!

Wrote a recipe using the food that you foraged! You may also include other ingredients; you must write the procedure using transitional words. You will share your delicious recipes with the class!

Picture of what it will look like:

Title of Recipe: _____

Ingredients:

Procedure (at least 5 steps):

First,
Next,
Then,
After,
Finally,

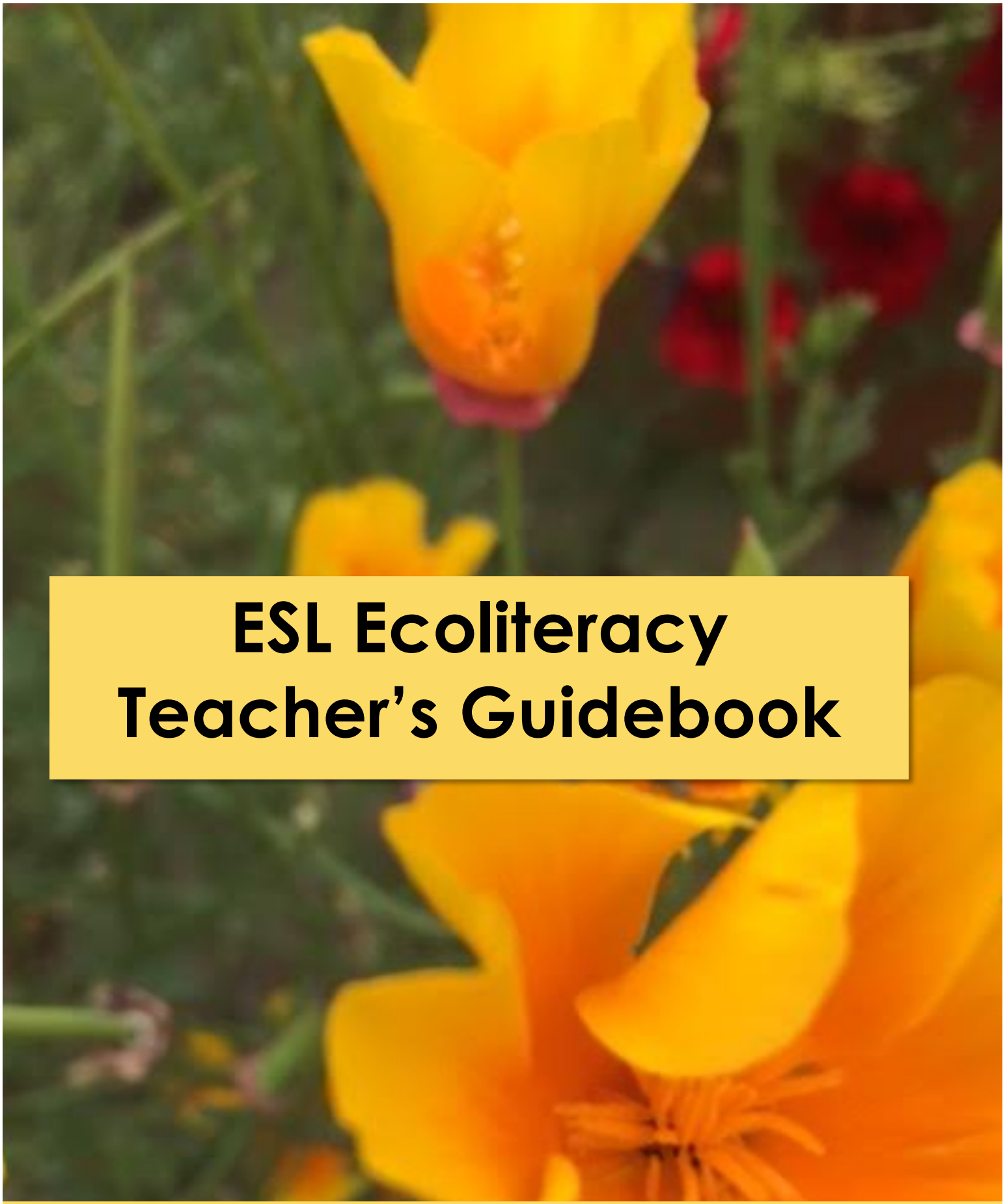
Lesson 4: Foraging Awareness Poster

You are now all foragers! You are now tasked with the responsibility of sharing the lessons you learned in sustainable eating and foraging skills. As a team of 3-4 you will create a poster to bring awareness to these lessons.

Guidelines:

1) You must use at least 2 of the new vocabulary words.
2) You must include the safty guidelines for sustainable foraging.
3) You must share your experience of foraging and give recommendations to other's for how they can have a successful foraging experience!
4) Share photos of your experience and/or the plants that you can forage in the area.

These posters will be hung up around your school!



ESL Ecoliteracy Teacher's Guidebook

Your language learning guide to interactive environmental education within urban areas

By: Jennifer L Young

Welcome Teachers!

This curriculum guide is indented for: Intermediate to Advanced English Language Learners who are interested in expanding their language skills and environmental competency through an interactive environmental approach. It is intended for ESL teachers working in urban environments where "wild" natural spaces may not seem as accessible as others.

Content/Theme: Orienteering and outdoor skills, Foraging, waste and water management systems, understanding urban ecosystems! The content in this curriculum guide is California Common Core State Standard aligned.

Rationale: This curriculum guide has been created with the intention to encourage student connection and understanding of the environment and foster a relationship with the agrestal world, which is packed full of learning potential! It promotes language acquisition though kinesthetic and social engagement. The 5 units in this guide provide ESL lessons through an ecoliteracy approach, so we can all get out there to explore and understand how to best live with the ecosystems that thrive within our cities!

Goal: Upon learning about the natural environment, students will design educational environmental sustainability and awareness posters to be posted around the campus and promote sustainable living.

TABLE OF CONTENTS
Organization of Activities and Lessons

Wild Neighborhood

What is living amongst us?

We have a tendency to think of "nature" and "wildlife" separate from our civilizations and urban communities. This is partially true, as humans have put a lot of work into constructing communities that reduce the dangers and difficulties that many undeveloped living spaces are exposed to. However, this concept of nature as being separate from our cities can limit one's perspective. The resilient natural world has found many ways to not only survive, but also thrive in cement jungles! This unit is designed to help individuals discover, appreciate and enjoy the wild natural world, which surrounds us in urban communities.

Lesson 1: Understanding Ecosystems

English Language Objective: Vocabulary Development & Reading fluency
Ecoliteracy Objective: Learn about ecosystems and recognize that living wild nature exists in cities too.

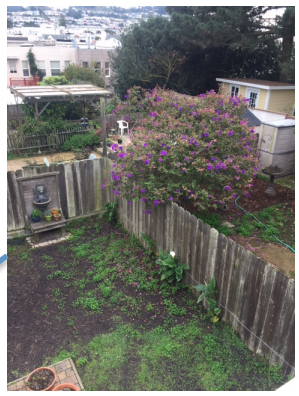
Warm Up:

Have students answer the following questions in their student workbook and then share out to the class.

1) What do you think of when you hear or see the word NATURE?

2) How often do you see or experience NATURE everyday?

3) Would you describe this picture as a natural environment? Why or why not?



Explain:

We often think of nature as a wild untouched place by humans, but nature is really all around us. There are healthy **ecosystems** in our city neighborhoods and it is up to us to enjoy and protect all the nature that lives with us in urban environments.
For more inspiration check out Emma Marris's Ted Talk: Nature is everywhere, we just need to learn to see it:
https://www.ted.com/talks/emma_marris_nature_is_everywhere_we_just_need_to_learn_to_see_it

Reading: Ecosystems; small and large

Read the story out loud with the students, or have students read aloud to the class.

New Vocabulary

Have students individually complete the first and second vocabulary exercise and then have them share out their answers to the class.

Give them the correct answers and review the words with the class. Have students correct their answers and fill in the correct definitions.

Vocabulary Matching Answer Key

9. G Soil
10. B Climate
11. F Concrete
12. H Environment
13. C Artificial
14. A Ecosystem
15. D System
16. E Decomposing

Soil (n) The top layer of earth in which plants grow
Climate (n) The usual weather conditions in a particular place or region
Cement (n) A hard, strong material that is used for building and made by mixing cement, sand, and broken rocks with water
Environment (n) The natural world
Artificial (adj)) Not natural or real
Ecosystem (n) Everything that exists in a particular environment. It includes living things such as plants and animals, and things that are not living, such as rocks, soil, sunlight and water.
System (n) A group of related parts that move or work together
Decompose (v) To cause something (such as dead plants and the bodies of dead animals) to be slowly destroyed and broken down by natural processes, chemicals, etc.

Resources:
Merriam-Webster Learner's Dictionary:
http://learnersdictionary.com
Kids Corner:
http://forest.mtu.edu/kidscorner/ecosystems/definition.html
eSchool Today:
http://eschooltoday.com/ecosystems/what-is-an-ecosystem.html

Lesson 2: Wild Neighborhood Photo Hunt

English Language Objective: Write descriptive identifications
Ecoliteracy Objective: Bring awareness to the ecosystems within cities

Matrials needed:

- Cameras or phones with cameras (the students can use their personal phones)
- English-Native Language dictonary (Google Translate or other online resourses could be used)

1) Instruct students to take a photo of a natural space within the city and describe what is in the picture and where it was taken. Encourage them to go to the places they wrote about in their "What ecosystems are around you?" written refelction.

2) Students may not know all the words of the things they are trying to identify or describe in the photo. Have students look up the word in English-Native Language translation dictionaries.

Lesson 3: Wild Neighborhood Photo Presentations

English Language Objective: Enhance public speaking skills
Ecoliteracy Objective: Bring awareness to the ecosystems within cities

For the presentations, there are a number of ways to display the photos depending on what technology is available in your class.

Students may project the photo in front of the class,
Students share it via Google Classroom.
Students may email the photos to you, and you can download and project them in front of the class.

Lesson 4: Wild Neighborhood Awareness Poster

English Language Objective: Comprehension check
Ecoliteracy Objective: Bring awareness to the ecosystems within cities

Students will create awareness posters to help promote appreciation for the ecosystems that live within the confines of a city. This is aimed to help reshape perspectives on what is "wild and natural".

Photocopy these posters and have the students hang them up around the school, to help spread awareness of nature!

Option: Make it a competition!

Have students present their posters and then vote upon which poster portrays the message the best. The winning poster will be photo copied and hung around the school. The other teams posters can be hung around the classroom.

Foraging

Find Your Food!

When eating a sandwich with fresh bread hugging crisp lettuce, succulent tomatoes and melted cheese oozing out of the side, it is easy to be consumed by the deliciousness of the product and nothing else. Every bit of that sandwich has come from the earth though, and there was a large unseen process to get that food from the earth to our mouths. We largely have become depended on others to gather this food from the earth to eat. This unit encourages the consumer to experiencing foraging for their own food, which will in turn foster a greater awareness and respect for the food that nourishes us and keeps us alive.

Lesson 1: A Foundation in Foraging

Ecoliteracy Learning Goal: Learn about the background, purpose and rules of foraging.
English Language Objective: Vocabulary Development; Strengthening reading skills, practicing collaborative communication; presentation skills.

Warm Up (5 mins) : Food and Foraging Classmate Survey

Ask a Classmate!

6. Where do you normally get most of your food? _____
7. Have you ever gathered your food from plants or trees? Yes / No
8. What is your favorite berry to eat? _____
9. What is your favorite park to visit? _____
10. What do you usually see at the park? _____

Introduction (10 mins): Mini Presentation of foraging.

Before students dive into the learning activity, it is important to give them a foundation on which to work. The following information can be presented in a power point, copied and given out individually, projected in front of the class, etc.

What is this person doing?
Have students write and then share out their answers!

Potential answers:
She is smelling the flowers.
She is picking plants.
She is looking at the plants.
She is enjoying nature.

After students share out explain that she is foraging! This will lead into the vocabulary introdction.

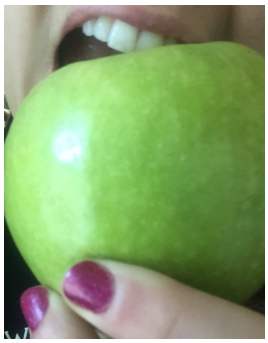
Important words to know!

Introduce the following vocabulary words to your students. Have them copy down the definitions and examples.

Forage (v): To search for and gather food and/or supplies
Example: She had to forage for plants to eat.

Toxic (adj): containing poisonous (harmful) substances.
Example: Do not eat that plant! It is toxic!

Image Credit: Google Images



Edible (adj): safe to eat
Example: You may eat that plant. It is edible!

Sustainable (adj): able to be used without being completely used up or destroyed.
Example: It is important to remember to practice sustainable foraging.

Image Credit: Google Images

Identify (v) To know and say what something is.
Example: When you forage, you identify plants.

Endangered (adj): Used to describe a type of animal or plant that ha become rare and that could die out completely!
Example: Never pick endangered plants!

Image Credit: Google Images

Reading Warm Up: Answer Key

True or False: Tasting a pant is part of the identification process. **FALSE**

True or False: You should eat as much foraged food as you can pick. **FALSE**

True or False: A common danger when foraging in the city is dog poo and wee. **TRUE**

True or False: It is legal to pick any plant you can find outside. **FALSE**

True or False: The quality of the soil affects the quality of the plants. **TRUE**

Reading:
Foraging Safety, Common Sense and the Law:

Adapted text from Forage London

Have students read the text individually and answer the "Reading Take Away" Questions or read together as a class. Alternatively, you can also assign partner readings, in which small partner groups read to each other. This can be a good way to get students reading out loud, but reduce the pressure of reading in front of the whole class.

Reading Take Away: Answer Key

Foraging Safety Comprehension Check:
After Reading the article above, answer the following questions:

5. **True or False:** It is ok to taste a foraged plant if you think you know what it is.
6. **True or False:** The plants found at the base of city trees are the best to eat because they usually have a good amount of Nitrogen exposure.
7. **True or False:** People have the same reaction to healthy plants.
8. **True or False:** When you have found and 1000% correctly identified a plant, you still shouldn't take that much.

1, False: You must KNOW 1000% what it is.
2. False: Many plants found at the base of trees in cities have been urinated on. The nitrogen in the urine is what encourages it to grow.
3. False: Some people react differently to plants, even if the plant is not toxic. Some of these different reactions can be harmful. Make sure you only take a small bite to find out how your body reacts!
4. True: Make sure you practice sustainable foraging! Take only a bit and do not be too greedy.

Plant Identification Reading Jigsaw!

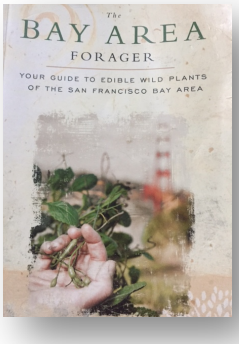
Plant identification groups

- Pick a handful of plants around your urban location that you would like to focus on. The recommendation is 4-5 plants.

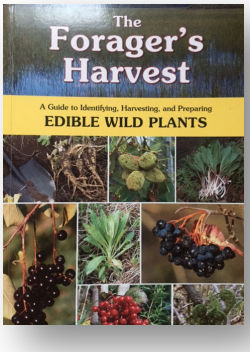
- Assign one plant to a group of 3; have each student create a presentation and poster about that plant to be presented to the class. (Model this process and a poster that you created first).

- It is recommended that the teacher compiles all the information (make sure that it is correct) that is presented, and create a printable field guide that the students can take with them during their foraging field trip.

Recommended Foraging Resources:



For teachers living in the Bay Area: "The Bay Area Forager: Your Guide to Edible Wild Plants of the San Francisco Bay Area" By: Mia Andler and Kevin Feinstein. (This was the book was used as a resource in this curriculum handbook and it is the foraging book that appears in many of the photos in this field guide)



Another great resource: "The Forager's Harvest: A Guide to Identifying, Harvesting, and Preparing Edible Wild Plants"
By: Samuel Thayer

Lesson 2: Foraging Field Trip!

Time for the main event! You will guide your students on a foraging fieldtrip! It is recommended to take them to a city park, or designated natural space in the city. Recommended Bay Area locations are Golden Gate Park and Presidio of San Francisco.

Materials:

- Student Foraging Logs
- Comprehensive Identification Guide
- Labeled boxes for students to place their foraged goods
- Cameras/Phones with camera

Pre-Fieldtrip:

- Introduce students to the Foraging Field Guide.
- Present any dangers that may exist in your foraging area. This could include plants, animals or people. Make sure students are familiar with poisonous plants, for example Poison Oak, and know what to be careful of!

Rules to Enforce:

- Do not eat anything, unless your teacher has given it the "OK".
- Make sure you use sustainable practices when foraging.
- There will be separate labeled boxes for each plant. Place the correct plant in the correct box.
- Be aware of your surroundings! Be respectful of the natural spaces that you enter.

Have students work in teams of 4 to complete their foraging tasks. Limit the area in which they can forage and have students gather the plants that have been reviewed in class. Make sure that students DO NOT eat anything before it is passed by you, the teacher. Also make sure that you review the poisonous or toxic plants that may be in the region!

Option:

Set up a competition between student groups!
RULES: The student-group who can correctly identity the most amount of plants, take a picture of it and sent it to the teacher first will win!

Post-Fieldtrip Activity:

Have a post-fieldtrip discussion and share out. Have students share their photos from the fieldtrip and share to the class what were their favorite and least favorite moments during the foraging experience.

Option: Print out the foraging photos and create a large poster collage to be hung up in the classroom. Have students add comments next to the photos about what they learned during those captured moments.

Foraging Reflection Journal:

Introduce the Description Words to the class and ensure they understand how to use them in their journals.

Have students write their reflection and then share out to the class. You can also post them up along with one of their photos and have students do a gallery walk, to read their classmates' work.

Lesson 3: Cooking with Foraged Food

English Language Objective: Comprehension check
Ecoliteracy Objective: Bring awareness to the ecosystems within cities

Vocabulary:

Introduce the new vocabulary through vocabulary frames! Show students and example, and then let them work in groups of 3. Assign each student to make vocabulary frames for 2 of the words. Then decorate the room with students' work.

Recipe (n): a set of instructions for making food

Ingredients (n): one of the things that are used to make a food, product, etc.

Procedure (n): a series of actions that are done in a certain way or order**:** an established or accepted way of doing something

Prepare (v): to make (someone or something) ready for some activity, purpose, use, etc.

Stir (v): to mix (something) by making circular movements in it with a spoon or similar object

Pour (v): to cause (something) to flow in a steady stream from or into a container or place

Write a Recipe:

English Language Objective: Adverbs of frequency/ Writing recipes
Ecolitearacy objective: Sustainable Eating

After students write their recipes have them share them out to the class. If possible, have students vote upon their favorite recipe to be actually created in class! Students will use the foraged plants to prepare the chosen recipe!

Lesson 4: Foraging Awareness Poster

English Language Objective: Comprehension check
Ecoliteracy Objective: Bring awareness to the ecosystems within cities

Students will create awareness posters to help promote sustainable eating and foraging skills. As a team of 3-4 students will create a poster to bring awareness to these llessons.

Photocopy these posters and have the students hang them up around the school, to help spread awareness of nature and foraging!

Option: Make it a competition!

Have students present their posters and then vote upon which poster portrays the message the best. The winning poster will be photo copied and hung around the school. The other teams posters can be hung around the classroom.

Happy Teaching!